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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/041,757	01/07/2002	Christopher K. Ober	1153.027US1	3212

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9  
EXAMINER

ASINOVSKY, OLGA

ART UNIT.	PAPER NUMBER
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1711

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/041,757

Applicant(s)

OBER ET AL.

Examiner

Olga Asinovsky

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 07 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. Applicant's election without traverse of Group I, claims 1-12 in Paper No. 8 is acknowledged.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Article of Xiang, Maoliang et al, "Surface Stability in Liquid-Crystalline Block Copolymers with Semifluorinated Monodendron Side Groups", Macromolecules, Vol. 33, No. 16, (08/2000), pages 6106-6119 (cited by applicants in the Form 1449).

The present invention is a compound consisting of a block copolymer comprising a block copolymer of a polystyrene block and blocks of 1,2/3,4-isoprene and wherein a said block copolymer represented by the formula (I) in claim 1 has a fluorine-containing compound represented by the formula (II) or (III) in claim 1.

Reference- Article of Xiang, Maoliang et al discloses at page 6109, Scheme 4, the block copolymer of a hydrogenated poly(styrene-b-1,2/3,4-isoprene) with the

attached 3-armed semifluorinated monodendron side groups. Reference discloses synthesis of the analogous compound to the present claim 1.

The difference between the present claims and this Article is the requirement in the present claims of the specified ranges for the styrene block, 1,2-isoprene block and 3,4-isoprene block.

In light of the disclosure in the Article to Xiang et al., the synthesis of the block copolymers is controlled by the process conditions. It would have been obvious to one of ordinary skill in the art to use a process for producing the block copolymer in Xiang et al wherein the ranges of each block can be selected such that indicated in the present claims because the molecular weight of each block can be controlled by the synthesis process condition for obtaining the desired molecular weight of each block.

4. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Article of Xiang, Maoliang et al, "Surface Stability in Liquid-Crystalline Block Copolymers with Semifluorinated Monodendron Side Groups", *Macromolecules*, Vol. 33, No. 16, (08/2000), pages 6106-6119 in view of Ober et al U.S.Patent 5,907,017 (cited by applicants in the Form 1449).

Article to Xiang et al does not disclose a blend of the fluorinated block copolymer with a thermoplastic elastomer block copolymer for the present claims 11 and 12.

Ober'017 discloses semifluorinated side chain containing polymers represented by the formula (II) at column 4, lines 30-35. The fluorinated polymers can be used in blends with compatible non-fluorinated polymers such as polystyrene, polyethylene, or other polymers, column 8, lines 412-46.

It would have been obvious to one of ordinary skill in the art to use the fluorinated block copolymer in the Article to Xiang et al for producing a blend with other thermoplastic polymer as suggested by Ober'017 for obtaining the claimed requirement in the present claims 11-12. Because the fluorinated block copolymer has a low surface energy property as disclosed by Xiang, it is obvious to use a said fluorinated block copolymer as a modifier to improve the surface energy property of thermoplastic material.

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art is relevant to the subject matter in the present claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olga Asinovsky whose telephone number is 703-308-0041. The examiner can normally be reached on 9:00 to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703-308-2462. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Olga Asinovsky  
Examiner  
Art Unit 1711

O.A.

O.A.

June 30, 2003



James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700

O.A. 6.